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Bifurcation analysis of steady-state flows in the lid-driven cavity

Nuriev A., Egorov A., Zaitseva O.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2016 The Japan Society of Fluid Mechanics and IOP Publishing Ltd Printed in the UK.The paper is devoted to the study of the non-uniqueness issues of a steadystate flow in the square lid-driven cavity. A range 0 Re 20000 of Reynolds numbers is considered in which a numerical bifurcation analysis is carried out. The analysis allows us to localize several branches of the steadystate solution and also to investigate their stability.

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Keywords

bifurcation analysis, Navier-Stokes equations, numerical simulation, steady-state solution branches